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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/183,694	10/30/1998	JACKSON L. ELLIS	98-179	3415

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LSI Logic Corporation
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Milpitas, CA 95035

EXAMINER

PARK, ILWOO

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 06/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/183,694

Applicant(s)

ELLIS ET AL.

Examiner

Ilwoo Park

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 16-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Jones et al., Bean et al., and Ellis et al. were cited as prior art in the last office action.
2. Applicant's amendment filed on 3/25/2002 in response to Examiner's Office Action has been reviewed. Invalidation of Ellis et al. reference as a prior art under 35 U.S.C. 103(c) has been acknowledged in response to the Statement of Common Ownership in the Remarks filed on 3/25/2002. Claims 21-26 are added. The following rejections now apply.
3. Claims 3 and 16-26 are presented for examination.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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5. Claim 21, 22, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Krakirian, US patent No. 5,781,803¹.

As to claim 21, Krakirian teaches a data controller [hard disk controller IC 204] of a peripheral device [target device 202 in figs. 3 and 4; col. 7, lines 7-24] having a storage medium [hard disk 208] and a processor [microprocessor 206], wherein the data controller data controller minimizes interrupts [col. 16, line 34-col. 17, line 5] to the processor by re-ordering [col. 15, lines 13-28] a plurality of commands received from a host computer [initiator 201] from a order of arrival into an order of sequence in the storage medium. However, Krakirian does not explicitly disclose the data controller minimizes interrupts to the processor by the reordering.

As to claim 22, Krakirian teaches a command queuing engine configured to arrange the plurality of commands into at least one thread [col. 17, lines 36-63].

As to claim 26, Krakirian teaches a peripheral device [target device 202 in figs. 3 and 4; col. 7, lines 7-24] that includes a data controller [hard disk controller IC 204], microprocessor [206], a buffer memory [205], local memory and a storage medium [hard disk 208], and that is couplable to a host [initiator 201], wherein the data controller creates [col. 15, lines 27-29] threads of a plurality of commands and generates interrupts [col. 4, lines 4-43] at the beginning and end of the of the plurality of commands relative to a data transfer.

¹Krakirian was a pertinent prior art cited in the previous office actions.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krakirian, US patent No. 5,781,803 and Jones et al., US patent No. 5,483,641.

As to claim 3, Krakirian teaches a data controller [hard disk controller IC 204 in figs. 3 and 4], that is couplable to a host [initiator 201] and coupled to a storage medium, microprocessor, local storage and a buffer memory, comprising a command queuing engine that creates a plurality of threads of sequential commands [col. 17, lines 36-63] while minimizing [col. 5, lines 8-12] interrupts associated to the commands. However, Krakirian does not explicitly disclose the plurality of threads of sequential commands exist simultaneously.

Jones et al teach a data controller comprising a command queuing engine that creates a plurality of threads of sequential commands that exist simultaneously [col. 50, lines 50-60; col. 53, lines 1-63].

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Ellis et al and Jones et al because they both teach a command queuing engine that creates a plurality of threads of sequential commands and the Jones et al's teaching of the plurality

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of threads of sequential commands existing simultaneously would increase flexibility in handling multiple SCSI commands of Krakirian's [col. 15, lines 14-17].

8. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krakirian, US patent No. 5,781,803 and Jones et al., US patent No. 5,483,641 as applied to claim 3 above, and further in view of Bean et al., US patent No. 4,543,626.

As to claims 16 and 18, Bean et al teach a command queuing engine comprises:

a transfer extend generator configured to generate (col. 4, lines 38-42) transfer extend entries for a data transfer between the storage medium and a host computer; and

a data retrieval channel (col. 6, lines 64-68) coupled to receive the transfer extend entries for programming the data transfer.

As to claim 19, Bean et al teach the command queuing engine further comprising a status retrieval channel (col. 4, lines 18-21).

As to claim 20, Bean et al teach each of the retrieval channels are coupled to receive transfer extend entries and to provide (implicit: col. 7, lines 29-57) used read pointers to a first storage device of the peripheral device.

As to claim 17, Bean et al teach the transfer extend generator is coupled to the buffer memory to store the transfer extend entries (col. 4, lines 15-18).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Krakirian, Jones et al, and Bean et al because they both teach receiving and

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processing host commands for a data transfer between the host and the local memory and the Bean et al's teaching of the command queuing engine generating transfer extend entries for host commands would increase efficiency of the Krakirian and Jones et al's microprocessor.

9. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krakirian, US patent No. 5,781,803 as applied to claim 21 above, and further in view of Bean et al., US patent No. 4,543,626.

As to claims 23-25, Bean et al teach the limitations of the claimed invention (see the last office action).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Krakirian and Bean et al because they both teach receiving and processing host commands for a data transfer between the host and the local memory and the Bean et al's teaching of the command queuing engine generating transfer extend entries for host commands would increase efficiency of the Krakirian's microprocessor.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication should be directed to Ilwoo Park, whose telephone number is (703) 308-7811 or via e-mail, *ilwoo.park@uspto.gov*. The Examiner can normally be reached Monday through Friday from 9:00 AM to 5:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jeffrey A. Gaffin, can be reached at (703) 308-3301.

Any inquiry of a general nature of relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 746-7239 (for formal communications intended for entry),
(703) 746-7238 (for after-final communications),

or:

(703) 746-7240 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., 4th Floor (Receptionist).

Ilwoo Park
Ilwoo Park

June 14, 2002